

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:**1. (Currently amended)**

A method of bonding a metallic membrane with a metallic part comprising:
directly physically contacting a smooth surface of the a metallic membrane
comprising palladium against a smooth surface of the metallic part without any intervening
material being present between the two contacting surfaces and mechanically pressing the
metallic membrane and the metallic part together;
heating the directly physically contacting metallic membrane comprising palladium
and the metallic part to a temperature above the half melting point of the metallic
membrane while subjecting the metallic membrane and metallic part to a controlled
environment of a reducing gas atmosphere.

2. (Original)

The method of claim 1 wherein the mechanically pressing is in the range of 100 psig
to 10,000 psig.

3. (Original)

The method of claim 1 wherein the pressure exerted by the mechanically pressing
together of the metallic membrane and the metallic part is in the range of about 1,000 psig
to about 3,000 psig.

4. (Original)

The method of claim 1 wherein the heating to a temperature above the half melting
point is to a temperature between 450°C and 1100°C.

5. (Cancelled)**6. (Original)**

The method of claim 1 wherein the metallic membrane is a palladium-based foil.

7. *(Original)*

The method of claim 1 wherein the metallic membrane is 75%/wt Pd-25%/wt Ag alloy.

8. *(Original)*

The method of claim 1 wherein the metallic membrane is Pd-Ru alloy.

9. *(Previously presented)*

The method of claim 1 wherein the mechanical pressing, the heating and the subjecting to a reducing gas atmosphere are carried out for at least 4 hours.

10. *(Previously presented)*

The method of claim 1 wherein the mechanical pressing, the heating and the subjecting to a reducing gas atmosphere are carried out for at least 5 hours.

11. *(Previously presented)*

The method of claim 1 wherein the mechanical pressing, the heating and the subjecting to a reducing gas atmosphere are carried out for about 24 hours.

12. *(Previously presented)*

The method of claim 1 wherein the mechanical pressing, the heating and the subjecting to a reducing gas atmosphere are carried out for about 30 hours.

13. *(Previously presented)*

The method of claim 1 wherein the metallic membrane is hydrogen permeable.

14. *(Previously presented)*

The method of claim 1 wherein the reducing gas comprises hydrogen.

15. *(Cancelled)*16. *(Cancelled)*17. *(Previously presented)*

The method of claim 1 further comprising:
polishing the surface of the metallic membrane; and
polishing the surface of the metallic part prior to the mechanical pressing.

18. *(Previously presented)*

The method of claim 14 wherein the hydrogen is at a pressure of 15 psig.